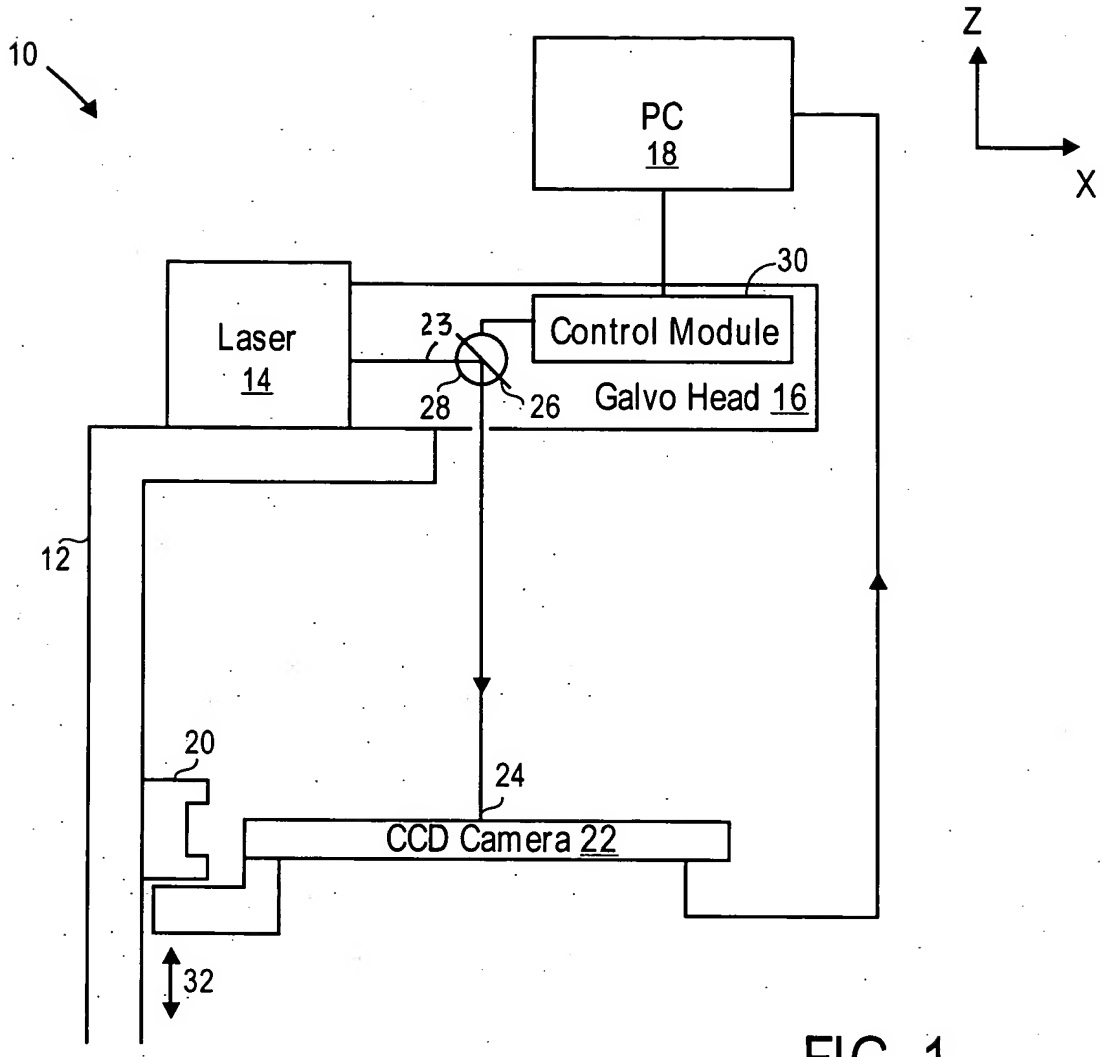
10
PC
18
Z
X
30
Laser
14
23
Control Module
28
26
Galvo Head 16
12
20
24
CCD Camera 22
32

FIG. 1

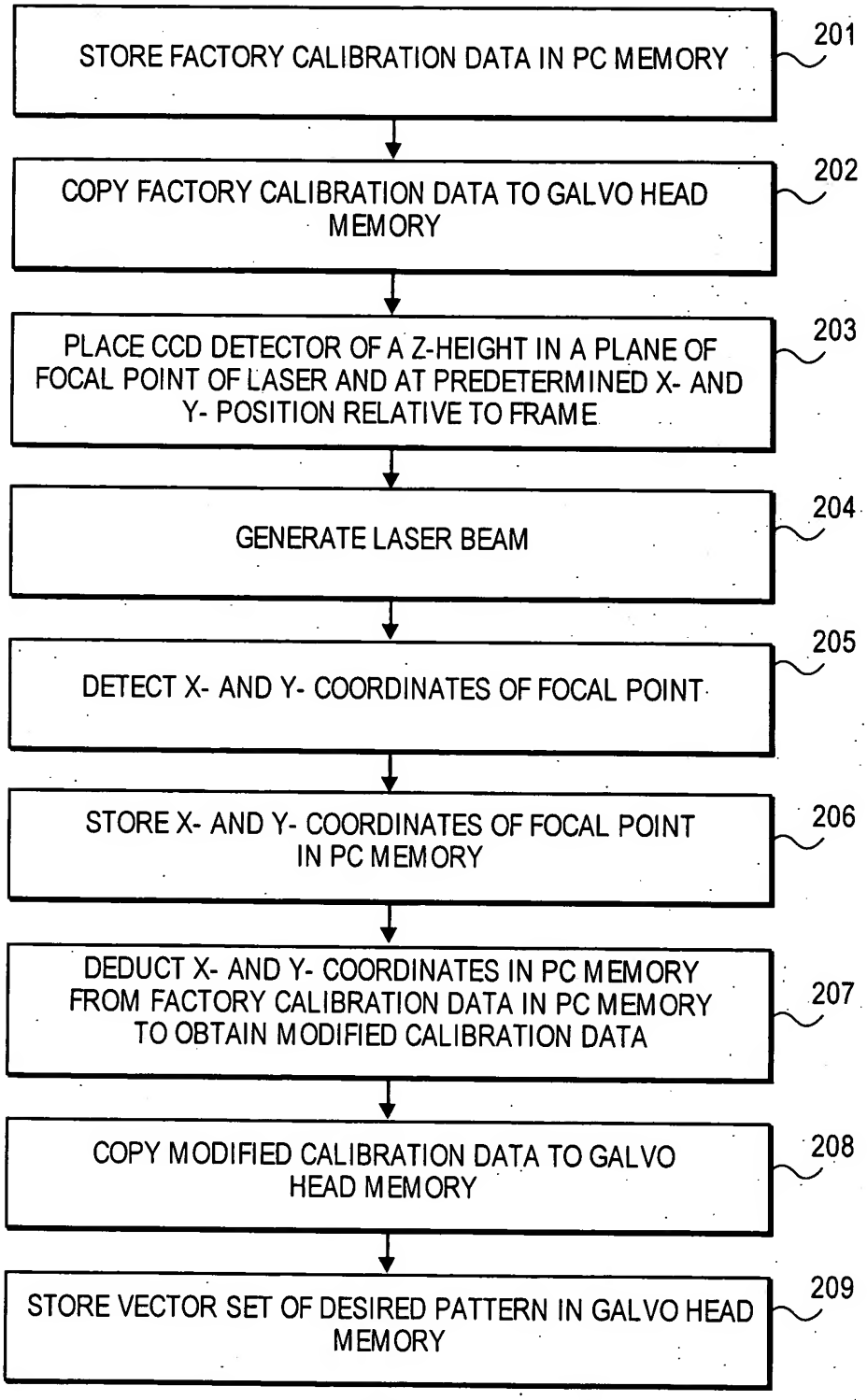
STORE FACTORY CALIBRATION DATA IN PC MEMORY
201
COPY FACTORY CALIBRATION DATA TO GALVO HEAD MEMORY
202
PLACE CCD DETECTOR OF A Z-HEIGHT IN A PLANE OF FOCAL POINT OF LASER AND AT PREDETERMINED X- AND Y- POSITION RELATIVE TO FRAME
203
GENERATE LASER BEAM
204
DETECT X- AND Y- COORDINATES OF FOCAL POINT
205
STORE X- AND Y- COORDINATES OF FOCAL POINT IN PC MEMORY
206
DEDUCT X- AND Y- COORDINATES IN PC MEMORY FROM FACTORY CALIBRATION DATA IN PC MEMORY TO OBTAIN MODIFIED CALIBRATION DATA
207
COPY MODIFIED CALIBRATION DATA TO GALVO HEAD MEMORY
208
STORE VECTOR SET OF DESIRED PATTERN IN GALVO HEAD MEMORY
209

FIG. 2

PC 18	Control Module 30
1) Factory Calibration Data 2) Vector Set of Desired Pattern	1) Factory Calibration Data
1) Factory Calibration Data 2) Vector Set of Desired Pattern 3) x1;y1	1) Factory Calibration Data
1) Factory Calibration Data 2) Vector Set of Desired Pattern 3) x1;y1 4) Modified Calibration Data (Factory Calibration Data -(x1;y1))	1) Factory Calibration Data
1) Factory Calibration Data 2) Vector Set of Desired Pattern 3) x1;y1 4) Modified Calibration Data	1) Modified Calibration Data 2) Vector Set of Desired Pattern

FIG. 3

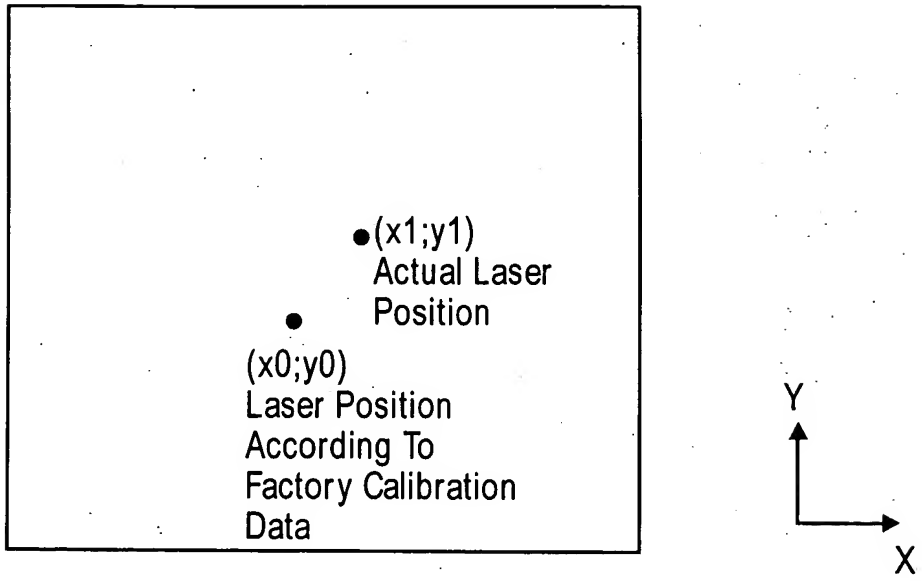
(x1;y1)
Actual Laser
Position
(x0;y0)
Laser Position
According To
Factory Calibration
Data
Y
X

FIG. 4

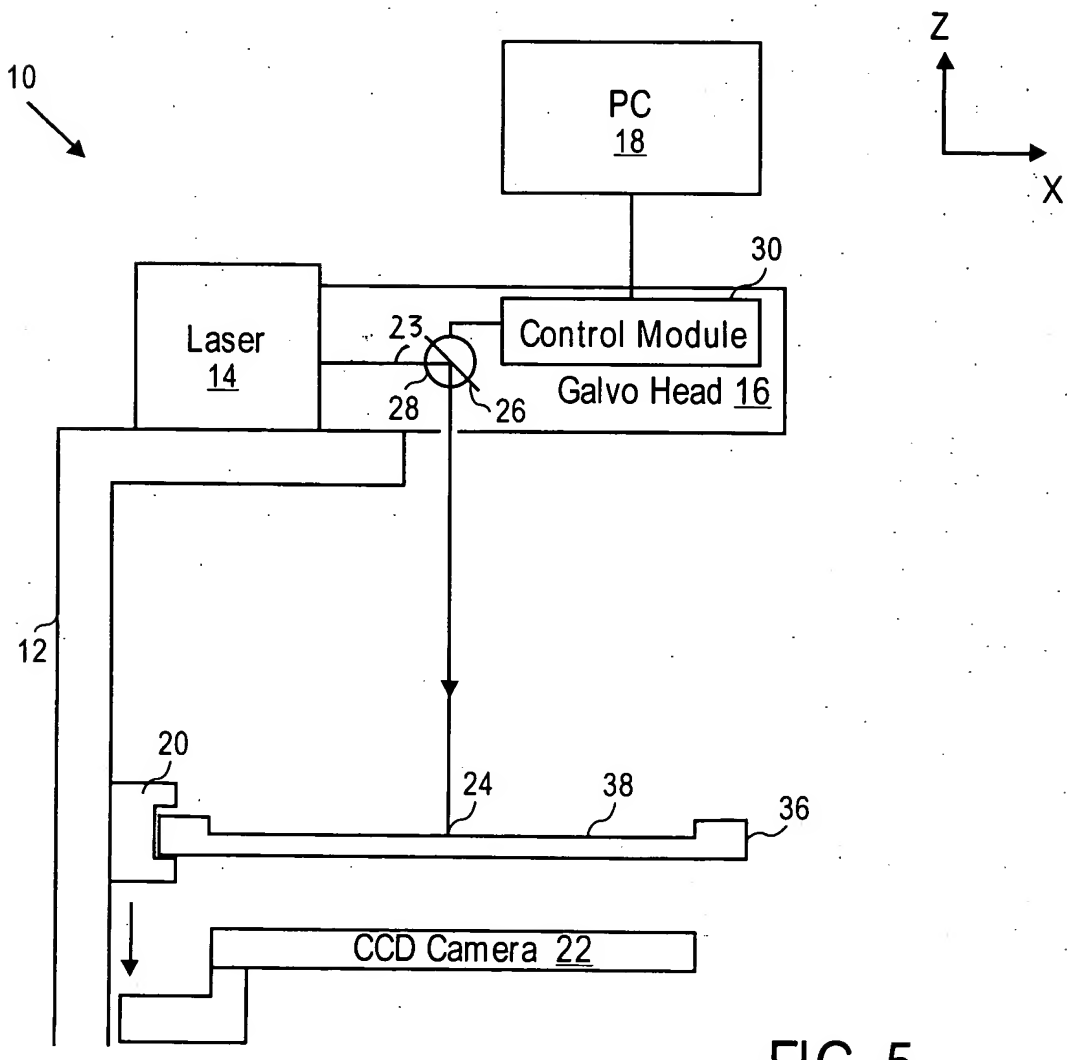
10
PC
18
Z
X
30
Laser
14
23
Control Module
Galvo Head 16
28
26
12
20
24
38
36
CCD Camera 22

FIG. 5

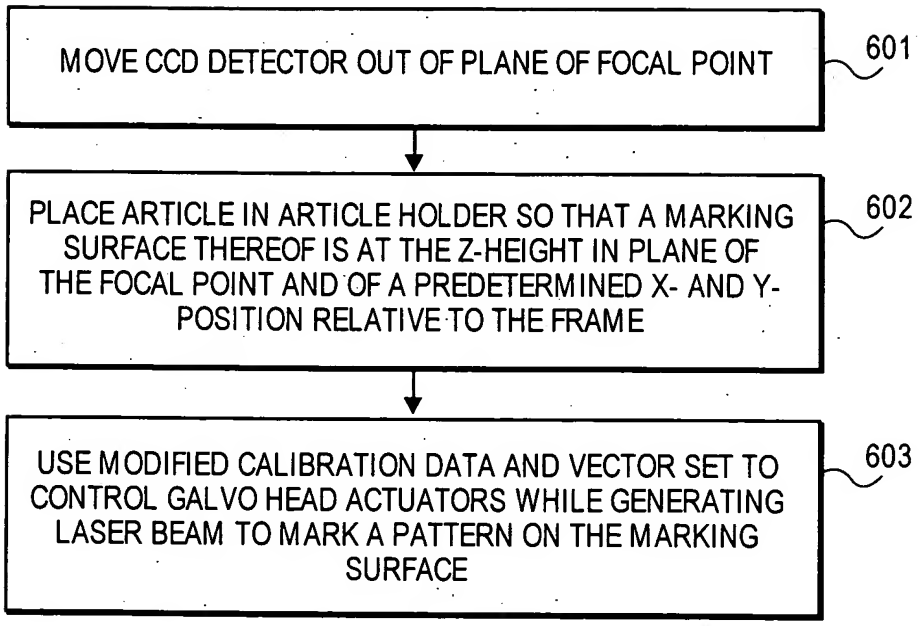
MOVE CCD DETECTOR OUT OF PLANE OF FOCAL POINT
601
PLACE ARTICLE IN ARTICLE HOLDER SO THAT A MARKING SURFACE THEREOF IS AT THE Z-HEIGHT IN PLANE OF THE FOCAL POINT AND OF A PREDETERMINED X- AND Y-POSITION RELATIVE TO THE FRAME
602
USE MODIFIED CALIBRATION DATA AND VECTOR SET TO CONTROL GALVO HEAD ACTUATORS WHILE GENERATING LASER BEAM TO MARK A PATTERN ON THE MARKING SURFACE
603

FIG. 6

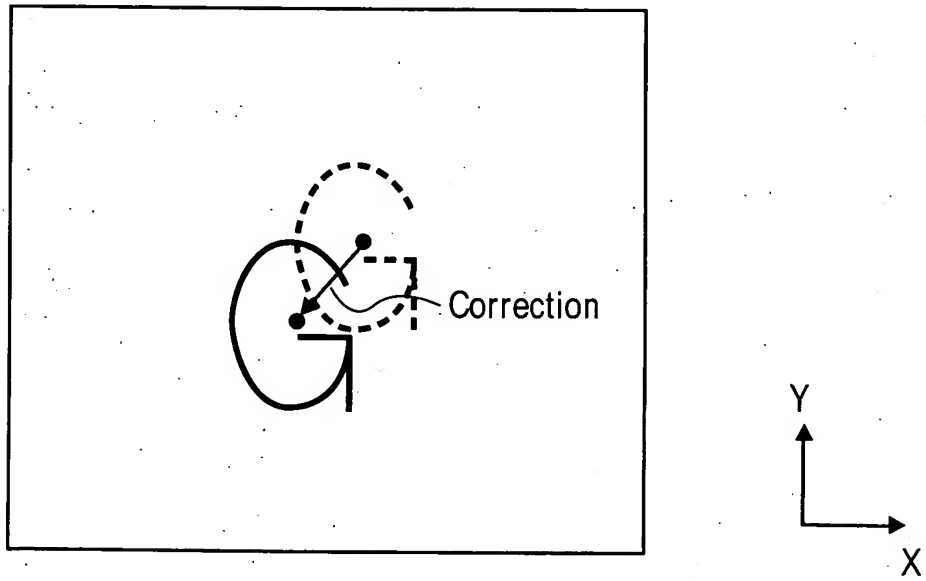
Correction
Y
X

FIG. 7